Come to the dork side we have π

Agenda:

- 1) Bell Ringer: BINGO
- 2) Turn in p. 69
- 3) Lesson: Scientific Notation Word Problems Which operation to use?? Practice
- 4) pages 77 81
- 5) Scientific Notation Quiz Tomorrow

Sep 10-9:19 AM

(1)
$$(3.84.10^{-4})(2\times10^{-2})$$
(2) $\frac{M^{9}}{M^{3}}$
(4) $(x^{-2})(x^{9})$
(5) $\frac{x^{8}y^{7}}{x^{2}y^{7}}$
(6) $(3.1\times10^{3})(2\times10^{3})$
(7) $(5.1\times10^{2})(2)$
(8) Write in Sci. Notation: 792
(9) $(3.23\times10^{5})(2\times10^{-2})$
(10) $\frac{4.8\times10^{8}}{2\times10^{4}}$
(1) $(y^{4})^{4}$
(2) $\frac{4.2\times10^{-4}}{2\times10^{-2}}$

Oct 12-10:19 AM

Regents Questions – Scientific Notation – Mult/Div

What is the product of 8.4×10^8 and 4.2×10^3 written in scientific notation?

What is the quotient of 8.05×10^6 and 3.5×10^2 ?

$$3.5 \overline{\smash)8.05} = 10^{6}$$

$$105$$
B) 2.3 x 10⁴
C) 2.3 x 10⁴²
D) 2.3 x 10⁴
D) 2.3 x 10⁴
A) 4

Oct 19-11:22 AM

What is the product of 12 and 4.2×10^6 expressed in scientific notation?

$$\frac{12}{4.2} \times 50.4 \times 10^6 \times 50.4 \times 10^7 \quad \text{C) } 5.04 \times 10^6 \quad \text{D) } 5.04 \times 10^7$$

$$\frac{12}{50.4} \times 10^6 \times 10^6 = 10^6 + 10^6$$

If 3.85×10^6 is divided by 385×10^4 , the result is

4. If
$$3.85 \times 10^6$$
 is divided by 385×10^7 , the result is

A) 3.85×10^4
B) 0.01
C] 1

D) 3.85×10^9
 $385 \left(\frac{3.85}{3.85} \right) \frac{10^9}{10^4} = 10^3$
Q) $\times 10^9$

O(\rightarrow)

 1×10^9

Oct 19-11:23 AM

- 5. What is the value of $\frac{6.3 \times 10^8}{3 \times 10^4}$ in scientific notation? $\frac{3}{6.3}$ A] 2.1×10^4 B] 2.1×10^2 C] 2.1×10^2 D] 2.1×10^4 D] 2.1×10^4
- 6. If the mass of a proton is 1.67 x 10 24 grams, what is the mass of 1,000 protons? A] 1.67 x 10 22 B] 1.67 x 10 23 C] 1.67 x 10 21 D)1.67 x 10 27

Oct 19-11:23 AM

Scientific Notation Practice

April 18 and Ta. In a second to the Second to

- A light year is approximately 9, 500, 000, 000, 000 km. Write this number in scientific notation.
- 2. I a film, the image of each picture remains on the screen for approximately 6×10^{-2} seconds. Write this number in ordinary notation.

Find the new exponent.

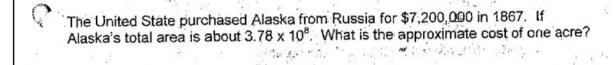
Subject of the second suppose the control of the co

3.
$$4.3 \times 10^4 = .43 \times 10$$

4.
$$2.75 \times 10^3 = 27.5 \times 10$$

5.
$$6.02 \times 10^{23} = 602 \times 10$$

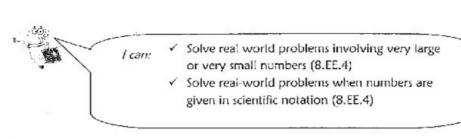
Oct 13-11:45 AM



7. Japan has a population of 124 million and an area of 3.7 x 10⁵ square kilometers. What is the population density of Japan?

- 8. The United States is about 297 million and an area of 9 x 106 square miles. What is the population density of the US?
- 9. The speed of light is approximately 3 x 10 5 km/sec. The distance from the Earth to the sun is approximately 1.5 x 10 8 km. About how long does is take light from the sun to reach the Earth?

Oct 13-11:45 AM



Strategy:

1) Read each question carefully.

a Company of Same of the

- 2) Decide which operation(s) to use.

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 solve the problem. Tor t/-, exponents must be the same.

- For :, divide digits, subtract exponents.

Example 1: A rectangular section of the Adirondack Park is being set aside for a new campground. Its dimensions are 4.2×10^3 meters by 6.0×10^3 meters. Find the area of the land in square meters.

multiplication

$$2 \times \omega$$
 $(4.2 \times 10^{3})(6.0 \times 10^{5})$

Step 1

 $4.2 \times 10^{3} \times 10^{5} = 10^{8}$
 2.52×10^{9}

Oct 19-11:22 AM

Example 2: One microgram is equal to 1×10^{-6} gram. If the mass of a substance is 5.6×10^{8} micrograms, what is its mass in grams?

multiplication
$$(1 \times 10^{-6})(5.6 \times 16^{8})$$

$$\frac{5 + e p^{2}}{1 \times 5.6 = 5.6}$$

$$\frac{5 + e p^{2}}{10^{6} \times 10^{8}} = 10^{2}$$

$$5.6 \times 10^{2} \text{ grams}$$

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3) A box contains 2.5×10³ pieces of Styrofoam. If the mass of each piece of Styrofoam is 3×10⁻⁴ kilograms, what is the total mass of the Styrofoam in the box?

multiplication

$$(2.5 \times 10^{3})(3 \times 10^{-4})$$
 $5 + p = 1$
 2.5

$$\frac{54p^{2}}{10^{3}\times10^{-4}} = 10^{1}$$

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4) New York State has approximately 19,000,000 people living in it. If the population of the United States is approximately 3×108, how many times greater is the population of the United States than the population of New York State?

$$\frac{US}{NY} \text{ Division } \frac{19,000,000}{1,9\times10^{7}} = \frac{3\times10^{8}}{1.9\times10^{7}} = \frac{1.5789437...}{1.5789...} = \frac{1.5789437...}{1.500} = \frac{1.5789437.$$

Oct 19-11:28 AM

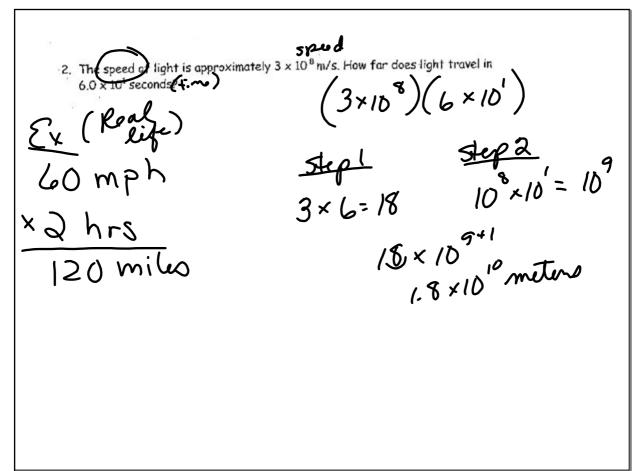
PRACTICE PROBLEMS: WORD PROBLEMS WITH SCIENTIFIC NOTATION

For the following problems:

- 1. Use scientific notation.
- 2. Don't forget UNITS!
- 3. Show your work.

1,	1. The body of a 150 to person contains 2.3×10^4 lb of copper. How much copper is contained in the bodies of 1200 such people?	Itiply
	$ \frac{\left(2.3 \times 10^{-4}\right)\left(1200\right)}{\left(2.3 \times 10^{-4}\right)\left(1.2 \times 10^{3}\right)} = \frac{2.3}{2.3} $	(10) (p3)=
	(2.3×10) × 1.2	10 10
	2.76 × 10 -1 2 3 0	(-
	=.276	•

Oct 5-9:12 AM



A computer can perform 4.66 x 10⁸ calculations per second. How many multiply calculations can this computer perform in one minute?

Ex

Read 4 pgolday

How many 70 grs

in a week?

4.66 × 10⁸)(6 × 10')

54.66 × 10')

3.466

27.96

27.96 × 10'

2.196 × 10'

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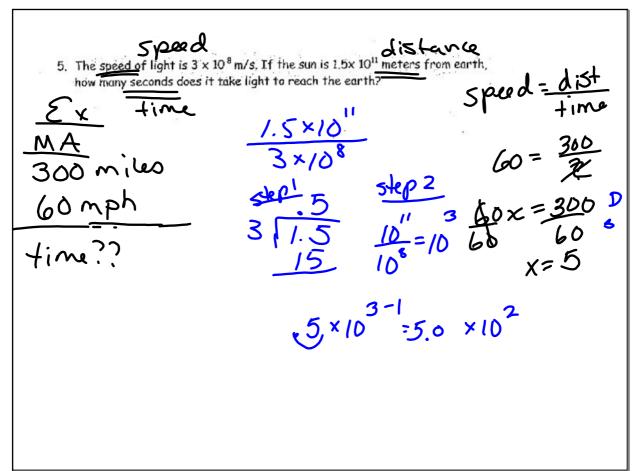
3.19

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4. The size of the Indian Ocean is 2.7×10^7 square miles. The Arctic Ocean is 1/5 the size of the Indian Ocean. How big is the Arctic Ocean?

Ex
Thave 20
$$\frac{2.7 \times 10^{7}}{5 \times 10^{9}}$$

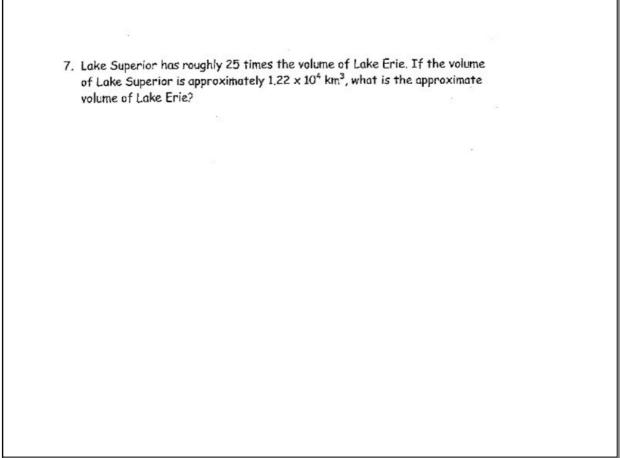
give you 1/5 - $\frac{5 \times 10^{9}}{5 \cdot \frac{10^{7}}{20}} = \frac{10^{7}}{10^{9}} = \frac{10^{7}}{10^{9}} = \frac{10^{7}}{10^{9}} = \frac{54 \times 10^{9}}{5.4 \times 10^{9}}$



Oct 19-11:27 AM

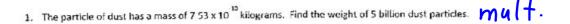
6. A liter is equal to 1 x 106 mm3. There are roughly 5 x 106 red blood cells in 1 mm3 of human blood. How many red blood cells are there in a liter of human blood?

1 e = 1 × 10 mm



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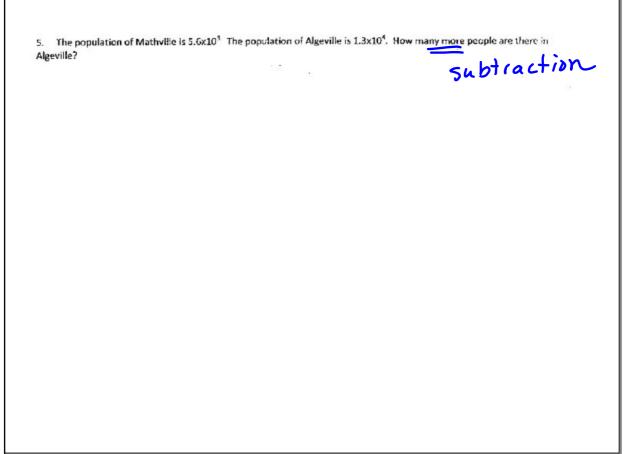


2. The distance from the sun to the Andromeda galaxy is 1.2×10^{19} miles. Light travels at a speed of 5.88×10^{19} miles per year (called a light-year). How long does it take light to travel from the sun to the Andromeda galaxy?

3. The mass of the sun is 1.989×10^{30} kilograms. bigger is the sun than the earth? $\frac{1.989 \times 10^{30}}{5.98 \times 10^{24}}$	The mass of the earth is 5.98x10 [™] kilograms. How many	Divide

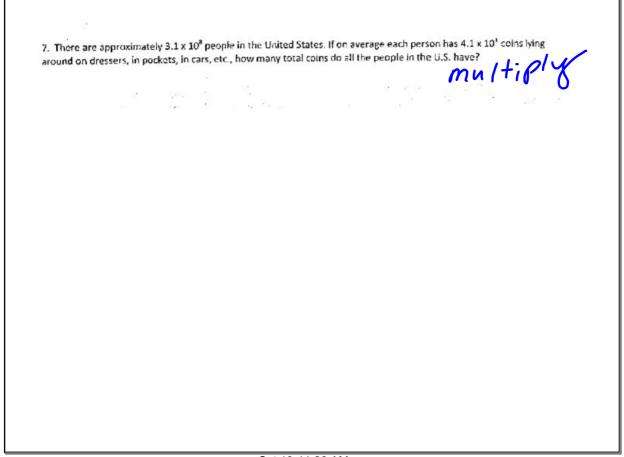
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What was the average amount spent $\underline{\underline{n}}$ er person on health care?



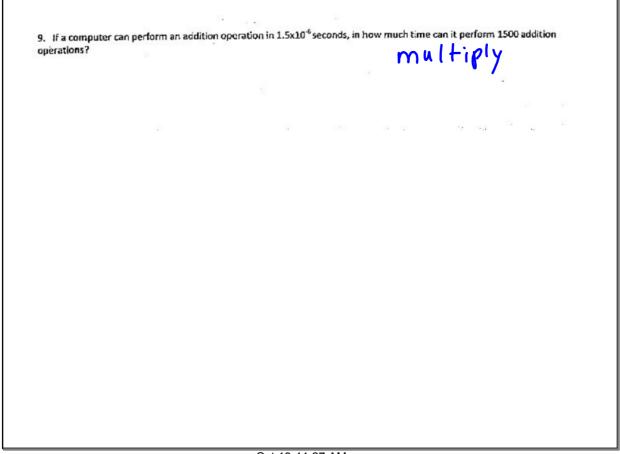
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meters?		re in a room that is 1200 cubic.	
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Canada in terms of land are	ar .	Subt	ract	6
				T
		50		
6				



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Scientific Notation Word Problems

Solve the following word problems.

- 1. An analysis was done on one quart of pond water from the local park to see if it was safe for swimming. Dr. Andropolis counted 1.3×10^6 bacteria in the one quart. Express this in standard notation.
- 2. Using the scientific notation number in problem one, write the same number times 1,000 in scientific notation

3.	Jeff Greenly is an asparagus farmer. In one year, Mr. Greenly harvested 82, 300 pounds of asparagus. Express this number in scientific notation.
1	Using the pounds of asparagus harvested in problem number three, express in scientific notation how many pounds would be harvested in ten years, if Mr. Greenly harvested about the same number of pounds each year.

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- 5. The thickness of one pixie wing is 4.5×10^{-2} inches. Express this as a conventional number.
- 6. Planet Zorton is 68, 820, 900 miles from planet Aerbon. Express this distance in scientific

7. For one bottle of perfume, the perfume manufacturer needs 7,350 pounds of flower blossoms. Express this amount in scientific notation. 8. If the same manufacturer of perfume in problem seven made 10,000 bottles of perfume, how many pounds of flowers blossoms would be required? Express your answer in scientific Oct 19-11:25 AM 9. The thickness of one grain of pepper is 2.3×10^{-2} inches. Express the thickness of one grain of pepper as a conventional number. 10. It takes 210,000 seedlings a year to replace the trees harvested by the Perfect Papermill

Company. Express this number in scientific notation.

11. The Earth moves around the	sun at 6.7×10^4 miles per hour. How many miles does the Earth	
travel after 2.4×10^3 hours (or 100 days)?	
12. There are 3.949×10^5 miles over each mile of road per da	of roads in the United States, If, on average, 1.2×10^2 cars went y, how many miles would be driven each day in the United States?	

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